## Weathering the Weather as Agriculturists: Dr. Darren Clabo

## Season 1, Episode 38

[Intro music]

**Kiernan Brandt:**

Welcome to Cattle HQ, a podcast from industry experts and progressive producers discussing cutting edge info about the cow calf sector to keep cattlemen and women in the know and positively affect their bottom line.

**Madison Kovarna:**

Welcome to Cattle HQ, brought to you by South Dakota State University Extension. I am Madison Kovarna, a beef nutrition field specialist based out of our Watertown Regional Center. For our loyal listeners, I am so happy we’re back with us and for those of you who are new here, welcome to the herd. For this episode, I’m pleased to share that Sarah Erickson is joining me. I’ll give her a few moments to tell us more about herself but Sarah is the data adviser on the animal health team with TELUS Agriculture. I have had the opportunity to listen to many presentations that Sarah has given, which gives testament to the wisdom and knowledge that she has. Today, though, I’m going to pique her brain about foot health in the feed yard and I’m sure we’re going to have an awesome and engaging conversation. Sarah, I do want to give you a few moments, like I just mentioned, to introduce yourself to our listeners such as like what do you do for work, where you’re from, and maybe even how you found yourself in the foot health space.

**Sarah Erickson:**

Thanks, Madison. Yes, to start off, I work for TELUS Agriculture. I’ve been with this company for over seven years now. I originally started in 2018 when it was formerly Feedlot Health Management Services after I finished my undergrad. I’ve completed my master’s degree while working with Feedlot Health. I began that in 2019 and then with COVID and everything, it ended up taking a little bit longer but nonetheless, that is how I was first introduced to the food health field as my mater’s degree was based in epidemiology and more specifically looking at health related lameness in Feedlot Health. I’m from Western Canada, more specifically, Alberta and – yes, I don’t know what else you want to know. Maybe I should just turn around and slow that down again but… [Laughter]

**Madison Kovarna:**

No, that was awesome. It’s nice to hear a personal viewpoint on this crew who came in and not just – people sometimes may think that I find all of the information but it’s always interesting to see what everybody shares about themselves and how they find themselves where they’re at. I think you did perfectly fine and it’s always a joy to listen to you talk about this foot health and health related lameness topics because it is something that we tend to see in a feedlot more frequently than I’m sure some of us want to ever see it. On that topic, one thing I know a lot of us in the fed cattle industry and the feeding industry can be guilty of seeing a lame animal out in the yard and immediately that thought runs to your head, “Oh, it must be foot rot, better bring them in to treat it.” That’s a knee jerk reaction, the thing we blame it on is foot rot. What are some ways that we can identify these hoof and foot problems further rather than just assuming it’s foot rot? Is there any other tale tell symptoms of these other hoof related illnesses that we can pick apart as we bring them in to be treated?

**Sarah Erickson:**

Yes, for sure. You’re absolutely right, foot rot is the number one diagnosed. Say that loosely as you alluded to, a lot of these are misdiagnosed as foot rot. Generally speaking, even in the literature, we’re seeing anywhere from 40% to 90% of cases being attributed to foot rot. That’s a huge range which tells us that there’s more likely than not other diagnoses that are playing into that. The other ones that we do commonly see include digital dermatitis, toe tip necrosis syndrome, and laminitis. All those three plus foot rot tend to be localized to the hoof or the lower limb. Obviously, there are different factors that play into each of those diseases but there are a few things that we can look at that really help us figure out whether or not these are foot rot cases. Toe tip necrosis syndrome is probably one of the easier ones to identify because the animals literally do toe tip. They’re really light on their toes. Generally, this is on the hindfeet and really importantly with toe tip necrosis syndrome, it happens early in the feeding period. It's highly associated with what we call the “abrasion theory” which is how hard surfaces such as concrete or metal through the shoot system can cause abrasion on the hoof and lead to breaking at the white line of the hoof which then allows bacteria to enter and cause infection. We think about that in terms of when those animals are exposed to those handling systems in the feeding period. Generally speaking, that’s very early days on feed. If you see animals that are walking very tipped up on their hindlegs, very cow hawked and early in the feeding period or early days on feed, generally speaking, it’s probably a good indication that maybe it’s not foot rot. The other thing we can look for with toe tip necrosis syndrome is generally speaking, there’s not swelling in the lower limb, whereas foot rot, that’s a very classical sign of foot rot is there’s a lot of swelling around the pastern and fetlock and often in between the claws of the hoof. That’s number one, being able to differentiate early in the feeding period. When we look at digital dermatitis and laminitis, both of these diseases tend to happen more commonly later in the feeding period. We’re talking about 150 days on feed and up and so it’s actually really important to be able to differentiate in between those two because they happen similarly in the feeding period timewise but as far as differentiating them from foot rot, again, we’re going to be looking for the absence of that swelling in the lower limb. Foot rot also tends to have a really strong, foul odor associated with this. You can think of that stuff too when you’re bringing animals through the shoot. Unfortunately, the number one best way to differentiate whether or not you’re dealing with foot rot case or a digital dermatitis case is to actually lift the hoof up. We have feedlots that have implemented something like a winch system or even just a rope system and using physical strength to be able to lift the foot off, clean the foot off whether that’s with paper towel or whether you’re able to hose that foot off and actually view the lesions that are on the bottom of the hoof. Obviously, that’s a big time commitment and something that’s not always feasible but if feedlots are dealing with the outbreak of lameness and they’re not really being able to resolve it, treating it as we would treat conventional foot rot cases, usually, that’s the next we take is we need to actually lift these feet up and confirming whether or not there is foot rot present because it might be a different disease entirely and digital dermatitis is a really good example of one where we would normally treat foot rot with systemic antibiotics and usually, that works just fine whereas with digital dermatitis, we actually want to use a topical antibiotic. If you’re treating animals that have digital dermatitis cases with systemic antibiotics, thinking of their foot rot, chances are those lesions aren’t going to resolve. Laminitis is its own ball of wax and generally speaking, there isn’t necessarily a treatment per se for laminitis. This is a metabolic disease associated with being on high green diets and this also tends to be part of the reason why we see it more commonly at later dates on feed because those animals have been on high green diet for a longer period of time. Some of the differentiators for laminitis versus foot rot is mainly looking at – again, you can look at the lack of swelling in the joints and that kind of thing but also looking at the incidence in the pen. Foot rot tends to be a very highly infectious disease and so this isn’t something where – laminitis, given that it’s metabolic is not infections and so you won’t often see multiple cases popping up all at once whereas with foot rot, it’s very common to see multiple lame animals and those numbers increasing quite rapidly within the pen. That can help as well but generally speaking, those foot rot cases, we do see them throughout the feeding period. Being able to differentiate between those different types of lameness is really important in being able to prevent them from happening and managing those cases that are arising.

**Madison Kovarna:**

You mentioned that, “I grew up on a family cow-calf in a 200-head feedlot operation in Northwest Iowa,” and the thing that was interested that you mentioned here was the fact that there is the days on feed component to how these different diseases come into play or how they affect animals such as that laminitis typically is that later in the feeding period illness that you might find in these calves and the steerers and heifers as we get further out. I think that’s a helpful tip to keep in the back of our minds as producers is we have these rolodex of all of these things we need to be looking for no matter [Laughter] what time we are feeding cattle or how long they’ve been with us. We’ve got all these things we need to keep on our minds and labeling it where these different diseases are. We’re not all trained veterinarians but we can all remember [Laughter] generic timeframes where these different things come into play. I really appreciated that you brought in some of that information too with it just to make little mental notes for ourselves as we go forward, as we bring cattle in and get cattle out and those types of things. In terms of talking about diseases, you mentioned the digital dermatitis, toe tip necrosis, laminitis, and then, we, of course, mentioned foot rot. We can’t talk about foot health and that one not come up. Have you noticed in your experience in this area any differences in breeds in terms of foot health or is it that 50/50 chance that the cards you’ll get dealt no matter what breeds you bring in or even we can bring in some of these dairy crosses as well. Do you see any differences in susceptibility - [Laughter] that’s the word – to these foot health issues that we see?

**Sarah Erickson:**

That’s a really good question. Honestly, not a whole lot. We actually see the most differences are in sex. Especially when we’re looking at laminitis cases and digital dermatitis cases, we tend to see more of those in heifers than we do in steerers. When it comes to breed, the analysis that we did for my master’s project was looking at a whole bunch of different risk factors for cattle place in Western Canada and determining whether or not those risk factors were anything associated with the outcome of becoming lame whether it’d be foot rot, toe tip necrosis syndrome, or digital dermatitis. One of the big things that we looked at was the difference between beef animals and dairy animals. Part of the reason being there is that digital dermatitis is endemic in the dairy industry, so it’s a super common disease there, as many likely know. Part of the speculation that arose from that is that, “Oh, dairy cattle brought the digital dermatitis into the feedlot. They’re the ones to blame,” kind of thing. Of course, we wanted to look into that and see whether or not there was any association with being a beef animal versus a dairy animal and the outcome of getting digital dermatitis or beef diagnosed with it, rather. We ended up finding nothing. Part of the thing that we started thinking about beyond that was how the diary industry incorporates into the feedlot industry. I think in this situation where if you have older, more mature dairy animals that have actually spent time on a dairy operation, then chances are, they could be bringing that disease into the feedlot with them but there’s not a whole – that’s not a very large population of animals coming from the dairies at later ages. It's your cold cows and things like that. The majority of cattle that are coming from dairies that are getting placed into feedlots or, as you mentioned, beef on dairy populations that are steadily increasing in numbers is that becomes a more popular option. Those calves actually don’t spend much time on the dairy itself. They’re day old calves when they’re taken from the dairy and placed in the calf ranch and they spend the rest of their time in the calf ranch prior to being shipped to the feedlot. Our speculation is that the likelihood of them actually coming in contact with digital dermatitis on that one day of their life at the dairy and then being able to bring it to the feedlot with them is pretty slim. Long story short, no, we haven’t noticed a lot of difference in breed.

**Madison Kovarna:**

It’s interesting that you brought up that the most differences are between those steerers and heifers. I always find it so funny of how much of different beef steerers are than heifers once we get into the feeding sector of the industry. It’s interesting that they get one more separation too even all the way down to the foot. We get all the way down to the ground and even their feet and things that they run into are a little different. That was interesting for me and it’s something that we maybe see but I’ve never made the connection. That’s cool that that’s where we see most of the difference versus the breed side of things or those crosses as well or at least things that we’re we’ve been able to iron out in terms of actually looking at it. Speaking of ironing things out, I know a lot of agriculturalist and a lot of feedlot managers and just feedlot people or producers, those type of things, are curious about the economics of this foot health issue and these epidemics of all these different things that can come in and out, have a feed yard and all of those different types of things. I know in past times that I’ve heard you speak on foot health that you’ve got some numbers and studies up your sleeve that we could chat about but from my understanding and where you’re from too in Canada that they might not be the most applicable to our producers here across the border but I think they definitely still paint a picture that’s worth sharing. Would you want to shed some light on maybe those numbers and studies that you’ve done up there in Canada with us just to gloss over this economics issue that presents itself?

**Sarah Erickson:**

Yes, of course. Like you said, the caveat here is that some of the numbers that we’ll be talking about are from Western Canadian study, so it doesn’t necessarily mean that they aren’t applicable, just have to keep in mind that there are some differences in the industry and differences in placement periods and just those factors can play a role in how the economics are affected. By and large, we are seeing that for an animal to reach a finishing weight of about 1400 pounds, generally speaking, that’s causing about $520.00 and that is US dollars for the producer to get that animal to reach that finishing weight and that’s a pretty standard number for a healthy animal. When we start looking at cases of foot related lameness, it can increase anywhere from about 630 to upwards of $1,500.00 per animal for them to reach that same finishing weight or for them to even reach a railing weight in which they’re heavy enough that they’re able to be shipped. Some of the factors that play into that, that’s obviously a big range, there’s almost $1,000.00 difference there from the low end to the high end of how that economic number can be affected. What really plays into there is the diagnosis. If we think about the late days on feed, digital dermatitis cases, or even late days on feed foot rot cases and our laminitis animals, those animals are already at a heavier weight theoretically or they should be because they’re later based on feed. The cost to then have that animal recover and to reach either an optimal slaughter weight or to reach that railing weight isn’t as high as an animal that’s diagnosed with something very early in feeding period. On that really high end where we’re getting north of $1,500.00 per animal for them to reach that finishing weight, that’s often seen in those toe tip necrosis cases that are diagnosed really early days on feed and then you have, in some cases, you got a 500-pound calf that has that diagnosis maybe within the first 50 days on feed and then you’re spending that whole time that that animal remains in the chronic pen and retreatments and all of the things that factor into that, attempting to get that animal to that optimal slaughter weight or to that minimum railing weight. That’s where those numbers can become really inflated and that’s where lameness can really become a huge economic issue, a huge welfare issue that often gets overlooked.

**Madison Kovarna:**

From that story that you just told about these numbers and we put the caveat in there that it is Western Canadian country and just completely different industries, maybe not completely – completely different, maybe a little dramatic on my end but some differences there between what we’re doing in different parts of not even Canada but even as we venture down into the United States of what we’re doing with these calves and you mentioned these numbers and the story that I took away from it and I will throw it back to you to see if I totally in the field on this but the story that I captured from you is that it really matters getting that proper diagnosis right away. You mentioned those toe tip necrosis calves, we’re going to be treating them for a while and hope that we can get them heavy enough to get on the truck and make their way to a packing house or to the final harvest there. If we’re treating toe tip necrosis as if it’s foot rot, definitely it doesn’t help hard case any more than what we’re already fighting with. I think what I’m hearing is that just getting that proper diagnosis as soon as we can seems to be maybe one of the things that’s impacting that economic factor the most.

**Sarah Erickson:**

I would completely agree and that’s the discussion that we often find results in both within industry professionals and with talking with clients and everything. That differential diagnosis is absolutely biggest thing that plays into this. It’s really hard because as you said, right, the knee jerk reaction is to say, “Oh, it’s a foot rot case and get them and treat them and send them on their way,” but there are so many factors that can play into these lameness diseases. That’s where it becomes really difficult because we’re dealing with all kinds of different things in terms of pen conditions, we’re dealing with differences as we talked previously about the differences in sex and how steerers versus heifers can be impacted differently, the things that are associated with this on feed and so much of what can make or break the ability to diagnose these diseases and then effectively treat them is just simply having the crews up to speed on how to identify them and what to look for and like you said, having those things in the back of your mind of like, “Oh, this is a really early days on feed animal, maybe I shouldn’t be looking for a laminitis case in this animal.” When it comes to some of the risk factors, I mentioned that pen conditions can play a role and so that becomes – anywhere the deals with the heavy winter, free stock throughout the spring or late winter and early spring months, that can be a really big risk factor for foot rot but it can also be a risk factor for digital dermatitis. Those kind of things become something else to factor into. The unfortunate part is that any time we start looking at our best ways to manage these diseases and the best ways to mitigate how they’re going to impact the feedlot, it just adds more and more to the day-to-day requirements that the feedlot crews have to do. Keeping pen conditions really clean when you’re dealing with that freeze-thaw cycle in the late winter/early spring can be really challenging and so we often do see increasing case numbers for foot rot and PD during that time simply because the pen conditions are propagating it and the crews can’t keep up. That becomes an additional layer of challenge and when the differential diagnosis is added in on top of that, it can be quite messy.

**Madison Kovarna:**

I just find it so intriguing that there are so many different avenues that all contribute to the same issue that we’re facing and you mentioned pen conditions and unfortunately, I’m so sad to admit this [Laughter] but this will probably be the last question we have time for today, so we’ll run through this one and pique your brain on this part but you kind of mentioned – you didn’t kind of, you did mention that pen conditions do play into some of these foot issues that we see and we all are – we all know and have experienced it that facility and facility design is going to be a pinch point when it comes to that proper treatment and prevention of foot issues mentioned very on in this episode about the winch system putting that on a shoot or having some way that we can actually pick up feet and look at them while keeping ourselves safe and if you don’t have that, maybe some treatment or diagnosis might suffer or having floor – concrete floors that are too rough and they started abrading at those feet, those type of things. Those facilities are going to be that major pinch point that we’re looking at but what are some big things that come to your mind that we could talk about in terms of facility or facility design in terms of helping out with either the incidences of these foot diseases and these illnesses or even just simple treatment, things that we can think about in our facility design?

**Sarah Erickson:**

As you mentioned, some of those rough surfaces especially in the processing facilities can be a risk factor for toe tip necrosis syndrome and so providing a soft layer with even it could be shavings or manure, something that provides a layer on top of the concrete especially when the animals are exiting the shoot because that’s when they tend to jump forward on the shoot and this is where temperament can also play a role in that as well. If you have really flighty animals that can make it even worse. Having that softer layers or exiting the shoot can help with that and prevents that sliding on the feet as they’re exiting. When it comes to the pen conditions themselves, obviously trying to keep the pens as clean as we possibly can isn’t always the easiest to do but it is one of our best practices in terms of mitigating foot rot and digital dermatitis. We are able to do things like mounding the soil, providing that – those mounds provide a nice, dry bedding area, provides a scenario where the animals can get up and out of the mud. They do actually treat it as a bit of the pen enrichment thing too. There’s nothing funnier than seeing a big, old steerer rubbing his head in the mound and having the time of his life. Those things are really good as well. When it comes to attempting to reduce the amount of disease that’s present in the feedlot, environmental persistency is an important thing to think about and so this is especially important for digital dermatitis and it is something that can stay in the pen environment even after the animals that have been effected with it have been removed from that pen. If and when possible, if feedlot crews can completely scrape a pen clean and then leave it empty for at least one or two weeks, preferably if it’s able to be completely dried out, which obviously that’s going to be weather dependent but if that pen’s able to stay empty and dry for a period of one to two weeks, that’s where we start really seeing improvements with the amount of the environmental persistency that is there with digital dermatitis. Obviously, depending on the production system and the fact that generally speaking an empty pen is not a good thing, that’s not always the easiest thing to do but that is something that we can try in cases where we have a lot of outbreaks of DD occurring.

**Madison Kovarna:**

The one thing that you mentioned that I just couldn’t help but giggle, the whole facility talk that you just gave is very relevant but the one thing that made me giggle is you’re putting these – you’re piling up this dirt to make these mounds and I always equate feedlot steerers to toddlers. You give them this very simple task and they just have so much fun and rubbing their heads on everything or just rubbing and kicking when their pen changes a little bit and just get so excited in that, it’s rewarding to see but also knowing that it’s helping in this foot related things as well is just icing on the cake to watch that happen.

**Sarah Erickson:**

You’re absolutely right. I agree.

**Madison Kovarna:**

Unfortunately, this means that our time together is coming to a close here and I think I could keep talking forever with you Sarah. It’s always a joy to have you and I hope our listeners will take advantage of the information that you’ve shared with us and utilize it in their operations and daily life. Foot health presents itself in a variety of situations that producers and industry folks alike find ourselves dealing with. I want to thank you again for joining me on this podcast and for the listeners that have tuned in. This has been Cattle HQ, brought to you by SDSU Extension, headquarters for all things beef cattle. Visit extension.sdstate.edu for the latest beef information. Thanks for hanging out with us while we tackle the not so glamorous world of foot health. It’s important stuff and if you’re paying attention, your cattle will thank you. Until next time, take care of those hooves and yourself.

**Kiernan Brandt:**

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[Outro music]